

What I claim is:

1. A digital transmission system comprising:
  - a. a transmitter transmitting a transmit symbol sequence that has been created by multiplying an input symbol sequence by a transmission matrix, said transmission matrix being comprised of non-orthogonal basis functions;
  - b. a signal path,
  - c. a receiver receiving a received symbol sequence, and
  - d. a processing element multiplying the received symbol sequence by a recovery matrix, whereby an output symbol sequence is produced.
2. A digital transmission system according to claim 1, wherein the transmission matrix is square and the recovery matrix is the inverse of the transmission matrix.
3. A digital transmission system comprising:
  - a. a transmitter transmitting a transmit symbol sequence that has been created by multiplying an input symbol sequence by an over-determined transmission matrix, said transmission matrix being comprised of non-orthogonal basis functions;
  - b. a signal path
  - c. a receiver receiving a received symbol sequence, and
  - d. a processing element multiplying the received symbol sequence by a recovery matrix, whereby an output symbol sequence is produced.

4. A digital transmission system according to claim 3, wherein the recovery matrix is a pseudo-inverse of the transmission matrix.
5. A digital transmission system according to claim 3, wherein the processing element removes redundant symbols in the received symbol sequence and a recovery matrix is created from an inverse of the transmission matrix with the corresponding columns removed.
6. A digital transmission system comprising:
  - a. a transmitter transmitting a transmit symbol sequence that has been created by multiplying an input symbol sequence by a transmission matrix comprised of non-orthogonal basis functions and performing an inverse fast Fourier transform in the result;
  - b. a signal path,
  - c. receiver receiving a received symbol sequence, and
  - d. a processing element multiplying the received symbol sequence by a recovery matrix and performing a fast Fourier transform, whereby an output symbol sequence is produced.
7. A digital transmission system according to claim 6, wherein a guard interval is added to the transmit symbol sequence.

8. A digital transmission system according to claim 6, wherein the processing element removes corrupt symbols and a recovery matrix is created from an inverse of the transmission matrix with the corresponding columns removed..